

## CLAIMS

1. A pellet-frozen lactic acid bacteria (LAB) culture in a commercially relevant package that  
5 has a weight of at least 50 g frozen material, wherein the frozen material is present in the form of individual pellets, having a content of viable bacteria of at least  $10^9$  colony forming units (CFU) per g frozen material and comprising from 0.5% to 13% of an additive compound measured as w/w of the frozen material, wherein the additive compound is an additive compound that is selected from the group of compounds that,
- 10 by using an amount of 10% of the additive compound measured as w/w of the frozen material, are able to increase the  $T_m$ ' (onset temperature of ice melting) of the frozen lactic acid bacteria (LAB) culture, which without the additive compound has a  $T_m$ ' value from  $-70^\circ\text{C}$  to  $-46^\circ\text{C}$ , to a  $T_m$ ' value above  $-46^\circ\text{C}$ , such as from  $-45^\circ\text{C}$  to  $-15^\circ\text{C}$  (measured by DSC) and wherein the frozen lactic acid bacteria (LAB) culture is characterized by that when stored  
15 at approximately  $-46^\circ\text{C}$  for 7-14 days the individual pellets of the frozen culture are not sticking together and therefore substantially remain as individual pellets where this is measured by following test
- the individual pellets of the frozen culture are pellet frozen in liquid nitrogen and 100 individual pellets (around 5 – 100 g of pellets) are poured into a petridish, thus forming a thin  
20 layer of loose individual single pellets, the layer being characterized in that the majority of the pellets are in physically contact with one or more of its neighbor pellets, placed at approximately  $-46^\circ\text{C}$  for 7-14 days and examined to see if the pellets are still loose or if the pellets had made clumps or are sticking together wherein the criteria for that the individual pellets of the frozen culture substantially remain as individual pellets are that at least 80 of  
25 the 100 individual pellets remain as loose individual single pellets;
- with the exception of a frozen lactic acid bacteria (LAB) culture that comprises LAB that are able to utilize sucrose and wherein the culture comprises cryoprotective agent compound selected from the group consisting of sucrose in an amount from 2 % to 13 % of sucrose measured as w/w of the frozen material; and trehalose in an amount from 4 % to 6 % of trehalose  
30 measured as w/w of the frozen material; and a trehalose/sucrose mixture both in the amount of 13% measured as w/w of the frozen material.

2. The pellet-frozen culture of claim 1, wherein the culture is a mixed mesophilic culture consisting of mesophilic bacteria having optimum growth temperatures at about 30°C.

3. The pellet-frozen culture of claim 1 or 2, wherein the LAB is a LAB selected from the group comprising *Bifidobacterium* spp., *Brevibacterium* spp., *Propionibacterium* spp., *Lactococcus* spp. including *Lactococcus lactis* subsp. *lactis* and *Lactococcus lactis* subsp. *cremoris*, *Lactobacillus* spp. including *Lactobacillus acidophilus*, *Streptococcus* spp., *Enterococcus* spp., *Pediococcus* spp., *Oenococcus* spp. and fungal spp. including *Penicillium* spp., *Cryptococcus* spp., *Debaryomyces* spp., *Kluyveromyces* spp. and *Saccharomyces* spp.

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4. The pellet-frozen culture of any of the preceding claims, wherein the frozen lactic acid bacteria (LAB) culture is a culture which without comprising the additive compound according to claim 1 has a T<sub>m</sub>' value of from -70°C to -46°C.

5. The pellet-frozen culture of any of the preceding claims, wherein the frozen lactic acid bacteria culture comprises from 5% to 10% of the additive compound measured as w/w of the frozen material.

6. The pellet-frozen culture of any of the preceding claims, wherein the additive compound is an additive compound selected from the group consisting of Cyclodextrin, Maltitol, Trehalose, Fish gelatin, Maltodextrine, Yeast Extract and Spray gum.

7. A method for making a pellet-frozen lactic acid bacteria (LAB) culture of any of the claims 1 to 6 comprising the following steps:

- (i) adding an additive compound to viable bacteria to get at least 50 g of material with a content of viable bacteria of at least 10<sup>9</sup> colony forming units (CFU) per g material and comprising the additive compound in an amount from 0.5% to 13% measured as w/w of the material,
- (ii) freezing the material to get pellet-frozen material, and
- (iii) packing the pellet-frozen material in a suitable way to get a packed frozen lactic acid bacteria (LAB) culture of any of the claims 1 to 6.

8. The method of claim 7, wherein

before adding the additive compound according to step (i) of claim 7 one has measured the T<sub>m</sub>' value of the frozen lactic acid bacteria (LAB) culture without comprising the additive compound and identified that it has a T<sub>m</sub>' value of from -70°C to -46°C;

5 and

after adding the additive compound is the T<sub>m</sub>' value of the frozen lactic acid bacteria (LAB) culture comprising the additive compound measured and it is verified that the T<sub>m</sub>' value is from -49°C to -15°C, more preferably from -39°C to -15°C.

10 9. A pellet-frozen lactic acid bacteria (LAB) culture obtainable by the method for making a frozen lactic acid bacteria (LAB) culture of claim 7 or 8.

10. Use of the pellet-frozen lactic acid bacteria (LAB) culture of any of claims 1-6 and 9 in a process for making a food or feed product.

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